

19980424.ba v02_n027.bam.980424 v02_n028.bam.980424

>From ???@??? Sat Apr 25 12:13:43 1998
Message-Id: <199804241316.IAA13752@sco.theporch.com>
Date: Fri, 24 Apr 1998 08:14:18 CDT
Subject: BOATANCHORS digest 2027

BOATANCHORS Digest 2027

Topics covered in this issue include:

- 1) Xtal Calibrator for SP-600
by "Richard Solomon" <w1ksz@tiac.net>
- 2) Re: GFCI
by Bob Roehrig <broehrig@admin.aurora.edu>
- 3) Re: Geeez! Don't kill yerself!
by Morris Odell <morriso@vifp.monash.edu.au>
- 4) Re: Running cathodes cool
by Bob Roehrig <broehrig@admin.aurora.edu>
- 5) Re: R388/51J3 AGC problem
by Morris Odell <morriso@vifp.monash.edu.au>
- 6) Re: GFCI
by Morris Odell <morriso@vifp.monash.edu.au>
- 7) Re: AWA DX 'test / twin 69s
by polepeeg@aaa4rm.ba-watch.org (BA Marina Electrician)
- 8) Digital doings
by Ralph Parker <rparker@istar.ca>
- 9) Re: Power Systems and Personal History
by "Larry Johnson" <k5yf@wt.net>
- 10) Refinishing Shellac, and Methanol
by "Barry L. Ornitz" <ornitz@dpnet.net>
- 11) Re: Xtal Calibrator for SP-600
by "Grant Youngman" <nq5t@gte.net>
- 12) MM2 manual
by Michael Tallent <mtallent@concentric.net>
- 13) Knight R-100????
by Eugene Rippen <soundval@foothill.net>
- 14) GFCI (GFI in Canada)
by Andre Guibert <aguibert@sympatico.ca>
- 15) B&W 850 Series Inductance Values
by Paul Monroe <pmonroe@jadebbs.com>
- 16) Drake TR-4?
by Dick Dillman <ddillman@igc.apc.org>
- 17) Re: GFCI
by "Arden Allen" <gumbear@pacbell.net>
- 18) GFCI(or GFI) thresholds and RFI filters
by Scott Robinson <spr@earthlink.net>
- 19) Need Schematic for S-107

by davidh@getnet.com
20) Re: power lines / chassis grounds
by "Jim Berry" <basalop@gte.net>
21) WTB: Sweep Generator (HP-8601A or ?)
by "JOSE V.GAVILA (EB5AGV/EC5AAU)" <eb5agv@ctv.es>
22) Re: power lines / chassis grounds
by Andre Guibert <aguibert@sympatico.ca>

Message-Id: <199804232319.TAA04225@mail-out-2.tiac.net>
From: "Richard Solomon" <w1ksz@tiac.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Xtal Calibrator for SP-600
Date: Thu, 23 Apr 1998 19:14:38 -0400
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Anyone know if Hammarlund made one for the SP-600??
Failing that, I could use the Heath-kit one I have, but
would rather not.

73, Dick, W1KSZ

Date: Thu, 23 Apr 1998 18:42:24 -0500 (CDT)
From: Bob Roehrig <broehrig@admin.aurora.edu>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: GFCI
Message-ID: <Pine.ULT.3.96.980423181232.881C-1000000@admin.aurora.edu>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Thu, 23 Apr 1998, Terry Burge wrote:

> I still would like to hear a 'clear, concise explanation on how
> to convert a two-wire boatanchor to a three-wire grounded modern (safe)
> one without raising the ire of the experts.

MY METHOD FOLLOWS - If I am wrong someone can tell me why:
(and I have some questions in this regard also)

If the BA has a power transformer so the circuits are isolated from the
AC line, it is simple to replace the original cord with a 3-wire job.
Obviously the green lead should go to the chassis. The Hot lead (black
or brown - depending on the color scheme of the cord) should go to the
AC power switch and fuse. The white (or blue) lead should go to the "low"

side of the transformer primary.

I also usually replace any line bypass caps with new ones of .01uf at at least 600V. Especially if the original caps were larger than that. .01 should be an adequate RF bypass value and if it is much larger (I have seen line bypasses as high as .47 uf) which causes excessive leakage current and most likely will cause any GFCI to trip.

QUESTION: What should be done in cases where the BA has both leads fused? My thought is that the fuse in the neutral lead should be removed from the circuit. (Mark the holder "spare").

Now how about those lovely "hot chassis" jobs (also known as the AA-5) where there is no transformer? Some of those have one side of the line directly connected to the chassis and some have the circuit "floating" except for maybe some caps to the chassis.

So far in this case, I have replaced the line cord with a polarized 2-prong plug type. I make sure that the wide prong, which is neutral, goes to the chassis or the "low" side of the circuit. I also make sure that the AC switch is in the hot side. (I usually add a fuse, too). I make sure that I only plug such a unit into an outlet that has been properly wired. I also always check the filament string wiring. It is important that the hot side of the line goes to the rectifier first, then the audio output stage, then the smaller 12V tubes, with the 1st audio stage usually being the closest to "ground".

If the set DOES NOT have the line directly connected to the chassis, it should be OK to use a 3-wire grounded cord (examples: a S-38 or SW-54), but I have not done so (I only have a couple of AA-5 radios and seldom use them). If the set has a GROUND screw, then it is safe to ground the chassis.

"Nostalgia is a thing of the past"

E-mail broehrig@admin.aurora.edu 73 de Bob, K9EUI
CIS: Data / Telecom Aurora University, Aurora, IL
630-844-4898 Fax 630-844-5530

Message-ID: <353FD4D9.69EE@vifp.monash.edu.au>
Date: Fri, 24 Apr 1998 10:55:05 +1100
From: Morris Odell <morriso@vifp.monash.edu.au>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Geeez! Don't kill yerself!
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Hi all,

This has been a very interesting thread. As a person who is both an electronics enthusiast and someone who has a professional interest in electrical injury I've read it with fascination and not a little horror.

The grounding situation as it regards boatanchors and other electronic equipment has been somewhat reversed here in Oz from the experience in the USA. We have a 240 volt multiple earthed neutral system with 3 prong plugs that can only be inserted one way. Of course, this is no protection against miswired plugs or sockets. In the vacuum tube days such things as 2 wire cords with one side of the supply connected to the chassis were very rare indeed. We used to hear tales of the parsimonious goings on "up there" with gaping mouths like children listening to stories of bogeymen. Fancy putting lives at risk just to save on a power transformer! (and besides, no power transformer means less weight and less chance of anchoring your boat..)

In recent years the coming of solid state and double insulation has seen the introduction of transformerless designs in such things as domestic TVs. (By transformerless I don't mean switch mode designs that have a high frequency transformer and an oscillator on the primary side connected to the mains. I mean those nasty circuits with thyristors chopping up the mains waveform and integrating the resulting electronic debris into a filter capacitor.) I find these things very scary - we get the occasional victim of them here at the city morgue where I work.

As a result, most boatanchor type gear that is used here has a power transformer and can (and should) have its chassis grounded through the mains cord.

There's been a bit of difference expressed concerning grounding practices in professional situations where there are very low level signals or high currents floating around. This is all very interesting but does not apply to the usual amateur situation. We are not using our old gear in professional mode and there is no recourse if something goes wrong. We always need to be aware that the stuff we use is nth hand and you can't assume any of it is safe, either by design or because of a fault. I think everything that can be grounded should be. I also think (for what it's worth) that transformerless sets should be approached VERY CAREFULLY. I wouldn't have one in my shack and if I was forced to, I would use an isolation transformer. In a recent case where a ground loop was causing trouble in a VHF receiver, I felt much happier and safer dealing with it by inserting a 1:1 isolating transformer in the antenna lead than by lifting a ground somewhere.

I hesitate to give advice to people such as Hank who have been dealing with the 2 wire system and such things as AA5s for longer than my

lifetime, but not all boatanchors are so experienced. (I saw a case only yesterday where someone got cooked through a moment's inattention by a very experienced person). There is an increasing number of younger hams getting interested in steam radio and it's important that they be aware of the subtleties of electrical safety.

My \$0.02 worth

73 de Morris VK3DOC (full sig below, this time)

PS: As far as wiring up your own house over here is concerned, it's not legal unless you have a "ticket" (or are covered by someone who has). Completed jobs are not connected until the integrity of the earthing connections are checked by an inspector from the supply authority. The last time I saw this done, he went through every power point in the house.

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Date: Thu, 23 Apr 1998 18:48:18 -0500 (CDT)
From: Bob Roehrig <broehrig@admin.aurora.edu>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Running cathodes cool
Message-ID: <Pine.ULT.3.96.980423184319.881D-1000000@admin.aurora.edu>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Sat, 25 Apr 1998, Bill Jarvis wrote:

> > Conversely, those "CRT boosters" which over-heat the heaters of failing
> > TV tubes: what effects do THEY have?

Back in my TV repair days, we used those boosters for 2 reasons. Mainly, if the CRT was "weak" it was a cheap way to get a brighter picture (for a while). We always left it up to the customer after telling them what was actually happening; improving the situation temporarily while avoiding the cost of a new CRT.

The other reason was in the case of a filament/cathode short in the tube. The booster acted as an isolation transformer and restored normal operation of the brightness control.

"Nostalgia is a thing of the past"
E-mail broehrig@admin.aurora.edu 73 de Bob, K9EUI
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Message-ID: <353FD9DE.2D52@vifp.monash.edu.au>
Date: Fri, 24 Apr 1998 11:16:30 +1100
From: Morris Odell <morriso@vifp.monash.edu.au>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: boatanchors@sco.theporch.com
Subject: Re: R388/51J3 AGC problem
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Hi all,

Terry Burge wrote:

> There is one slight problem that seems to be an excess of gain
> causing it to distort (overload) with the RF Gain set too high even with
> the AGC on. Clears right up when I back off on the RF Gain. Both AM and CW
> modes and the AGC appears to be working. Anyone got any ideas.

I've currently got my 51J4 opened up on the bench chasing an AGC fault.
It seems to have too much gain and clears up when the RF gain is backed
off just like yours. Although the AGC seems to be working it really
isn't. It's working too quickly and with too high a threshold so the S
meter jumps around but there's no real AGC action. What there is is too
fast despite the fact that I've got extra capacitance across C205B
because I like a slow AGC for SSB and CW.

I'm gradually coming to understand the 51J AGC. The AGC rectifier (diode
connected half a 12AX7) produces a positive voltage proportional to
signal strength that is effectively in series with the -56 volt grid
bias supply to the AGC amplifier tube (half a 12AU7 V111). The cathode
is connected to -44 volts and the plate is returned to the top of the RF
gain pot through a 47K resistor. The AGC voltage is derived from the
plate. The voltage there is about -1.5 volts with the RF gain fully open
and no signal, and swings more negative as the 12AU7 grid goes more
positive on strong signals. This unusual arrangement allows the AGC line
proper to have a low impedance which has various advantages.

I have found that the back bias chain which supplies the -56 and -44
volt levels is high by about 10 volts. This increases the effective bias
voltage on the AGC amplifier (56-44 or 12 volts, actually more like 15

in my radio) so it only conducts on very strong signals thus delaying the AGC by more than is good for it. The resistors in the back bias chain are all within spec. I'm still looking for the reason why the bias is so high. It may be a faulty tube (unlikely as I've tried substituting all of them) or some tolerance problem. I'm thinking of adding a resistor or zener (gasp!) to bring the bias back to what it should be but I want to exclude all other possibilities first.

Further news as it happens...

73 de Morris VK3DOC

> I'm moving (have moved) to a new system 'netman.tek.com' but they
> still got this account open too so anytime I expect it to die here.
> Going down to San Francisco for Tek all next week for a Cisco switch
> class. Was wondering what places to check out but being how I'll be in class
> all day Monday thru Friday I doubt I'd get much chance to checkout the local
> boatanchor haunts.
>
> Terry
>
>

--

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Message-ID: <353FDE28.3D71@vifp.monash.edu.au>
Date: Fri, 24 Apr 1998 11:34:48 +1100
From: Morris Odell <morriso@vifp.monash.edu.au>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: GFCI
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Bob Roehrig wrote:

> QUESTION: What should be done in cases where the BA has both leads
> fused? My thought is that the fuse in the neutral lead should be removed
> from the circuit. (Mark the holder "spare").

In an ideal world where you know the power outlet is wired correctly, that's a really good idea. I could never understand why both leads were fused in some gear, I can only assume it's for situations where the designers didn't know how the thing would be connected. I've even seen in it in medical equipment meant to be used in a "safe" environment.

73 de Morris VK3DOC

Date: Thu, 23 Apr 1998 20:52:57 -0400
From: polepeeg@aaa4rm.ba-watch.org (BA Marina Electrician)
Message-Id: <199804240052.UAA01615@aaa4rm.ba-watch.org>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: boatanchors@theporch.com
Subject: Re: AWA DX 'test / twin 69s

Dave, next chapter is 6P Sat 'til 6P Sun 7030 +/-, 14060 +/- . It's all cw but that's fine with me.

Did u note By Goodman, W1DX is active?

Best scores for sets < 12/7/41. Complex mess to score, call me on fone if you want the jumble... but u gotta be AWA to submit

tk's the note... and the digital 'crawlers' are just atrocious - they've got mosta 40 cw used up. Just mindless big-\$\$\$ jonk. I wonder if one 'o those button smashers will ever think of xmt'ng digitized speech on amtor - next to Hillary giving Sadamm a ham job?

We cud get 'em for mixing modes!!!!

And you thot Monica Lewinski was big press.

(sri for the reflector carbon copy - cudn't stop mahseff)

M

Message-Id: <3.0.5.16.19980423175346.193f42c2@istar.ca>
Date: Thu, 23 Apr 1998 17:53:46 -0700
To: Old Tube Radios <boatanchors@theporch.com>
From: Ralph Parker <rparker@istar.ca>
Subject: Digital doings
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Marty the polepeeg said:

>I had at it last night with the Stancor 69 et RME 69 with mixed results.

>Back in to 40 (7030) @ ~8:30P when in comes the packet invasion.
>Returned to 40 ~5A for a couple of more... Then comes packet again.
>Why do those guys do it? 7030-7080 is theirs & they'll kaplump down
>anywhere there's a non-digital hole sending out broadcast packets...
>Any sympathy out there?

Yes, lots. I think HF packet is more of a threat to our CW bands than the codeless types. Don't understand why they don't stay 7080-7100, or 14080-14.100. They're also destroying "my" 20m ssb band, 14000-14.150. You'd think that they wouldn't need much bandwidth per signal.

So, where do I go with my pipsqueak BA? 35 watts isn't much these days. I'll need a spot for my 90800, TBS-50, DX-35 and G-77 soon, where I can chat with other BAers.

7040 with the QRPers? 14060? I guess 3580 is still OK for local work.

What about 15 and 10 now that the sunspots are returning?

Even the CX is not well placed at 14020 (too much SSB QRM).

This IS a quandry. Where do YOU hang out? A list in ER, maybe?

Yours in anticipation of good BA QSOs.

Ralph, VE7XF

From: "Larry Johnson" <k5yf@wt.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Power Systems and Personal History
Date: Fri, 24 Apr 1998 01:12:38 -0000
Message-ID: <01bd6f1e\$12304fe0\$d714ecd0@k5yf>
MIME-Version: 1.0
Content-Type: text/plain;
 charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

--snip

Now all I have been talking about were committed by licensed electricians.

DON'T TRUST ANYBODY IF YOU MOVE INTO A HOUSE THAT IS NEW TO YOU.

Jack Jderm740@aol.com

--snip

Boy that's another one I learned the hard way. This happened about 2 years ago. Late one hot summer's night (true), the AC kicked off, and didn't come back on. I went out to the breaker box, flipped the breaker, etc., no luck. It just so happens I can reach the breaker box from my wood deck, and when turning it on, am not grounded. Probably a good thing. Said heck, go to bed and call the repair man in the am. Left the breaker off. In the am as I'm going out the door, checked it again, turned break on, no luck. So I left it off...thank god. That evening, I get home and the repairman shows up. We go out, he takes the cover off the ac, turns on the breaker, and doesn't work.

He's looking at it and I asked what was wrong. He said he didn't have a voltmeter but wished he did. I said that wasn't a problem, got one of mine. After checking, he says the compressor is hot (and I don't mean temperature), and starts to take off the cover to the breaker box. I stopped him and asked him what he was doing. He gave me a dirty look and said the obvious. Told him he wasn't doing it without cutting the main power. After some loose comment about having to reset everything in the house, I sez "Resetting the clocks is no problem...hauling your carcass out to the curb for large trash pickup is a problem"...so he cut the mains. After he took the cover off, he went back to the truck. I was standing there looking, and noticed something odd. Checking with the vm to make sure there was no power, I undid the wires to the breaker and attempted to pull it off. It disintegrated in my hand. Bottom line? After some more looking, we figured out what happened. Whoever put the ac in didn't ground it back to the box...only a hot and neutral. The compressor wore out, and apparently shorted out. But it didn't trip the breaker...it melted it. When we got the breaker off, a 1 inch by 1/2 inch V had been melted out of the bus bar like someone had taken a torch to it. Very sobering....I was a very lucky guy...This is a wooden frame house and I'm extremely lucky that the house didn't burn up or that I didn't get electrocuted in the process.

Larry Johnson, K5YF
Houston, Texas USA
e-mail: k5yf@wt.net

From: "Barry L. Ornitz" <ornitz@dpnet.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Refinishing Shellac, and Methanol
Date: Thu, 23 Apr 1998 21:50:17 -0400
Message-ID: <01bd6f23\$551c52e0\$4e81a4d1@ornitz.tricon.net>
MIME-Version: 1.0
Content-Type: multipart/alternative;
boundary="-----_NextPart_000_009C_01BD6F01.D6108820"

This is a multi-part message in MIME format.

-----_NextPart_000_009C_01BD6F01.D6108820
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

From: Owens, Clarence <owensc@nebeng.otis.com>
>As far as touching up the cabinets goes, I'd bet methanol would be >a =
really good stripper for the shellac (My Canadian methanol sure >does a =
great job of removing auto paint, too!!), but you'd really >have to use =
a gentle touch to just reflow the shellac.

Methanol is often available in larger paint stores. The local Wal Mart = carries it as well as acetone and naphtha. But as I wrote Fred in a = private note, reflowing old shellac is an effort in futility. Shellac = (originally, a natural resin derived from the Lac beetle) is much like = many paints. With age and exposure to air, it cross-links and behaves = as a polymer with a much higher molecular weight. Thus very little of = the old shellac will dissolve in the alcohol - most will turn into a = gummy mess.

It would be best to strip the shellac off completely, resand the wood, = and apply fresh shellac.

The cross-linking of "drying" oils is the principle behind oil-based = enamel paint. The solvent in these paints evaporates within a few = hours, but the paint takes at least a day to sufficiently cure to handle = properly. The oil in the paint reacts with the oxygen in the air to = slowly cross-link and form a high molecular weight polymer. Fresh = oil-based paint is easy to remove, but fully cured and aged oil paint is = virtually insoluble in most solvents.

73, Barry L. Ornitz WA4VZQ ornitz@dpnet.net

-----=_NextPart_000_009C_01BD6F01.D6108820

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD W3 HTML//EN">

<HTML>

<HEAD>

<META content=3Dtext/html; charset=3Diso-8859-1 =
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</HEAD>

<BODY>

<DIV>From: Owens, Clarence <[owensc@nebeng.otis.com](3D"mailto:owensc@nebeng.otis.com")>>
=

>As=20
far as touching up the cabinets goes, I'd bet methanol would be >a =
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removing auto paint, too!!), but you'd really >have to use a gentle =
touch to=20

just reflow the shellac. </DIV>

<DIV>
 </DIV>

<DIV>Methanol is often available in =

Message-Id: <199804240155.UAA24173@smtp2.mailsvcs.net>
From: "Grant Youngman" <nq5t@gte.net>
To: Old Tube Radios <boatanchors@theporch.com>
Date: Thu, 23 Apr 1998 20:55:42 -0500
MIME-Version: 1.0
Content-type: text/plain; charset=US-ASCII
Content-transfer-encoding: 7BIT

Subject: Re: Xtal Calibrator for SP-600

> Anyone know if Hammarlund made one for the SP-600??

Yes, they did. It came in a kit with the calibrator assembly which attaches to the right side of the top of the RF assembly, and a new switch which replaces the REC/SEND toggle with a CAL/REC/SEND switch.

It is the same XC-100 calibrator sold as an option for the HQ-129X and HQ-140X, as well as general purpose usage. The SP600-specific assembly is the PL-38657-G4

I found an XC-100 assembly for use in my SP-600 a while back, but it did not have the switch and new switch plate with it.

Grant/nq5t

Grant Youngman / NQ5T

nq5t@gte.net
BA pics at <http://home1.gte.net/nq5t>
Double Oak, TX -- nr Dallas

Message-ID: <353FF6DF.3198@concentric.net>
Date: Thu, 23 Apr 1998 22:20:15 -0400
From: Michael Tallent <mtallent@concentric.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: MM2 manual
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Hello:

I will get a copy shop to make the 11X17 copy of the schematic and I will copy the other pages from my original Central Electronics MM2 manual. I think the cost with postage would be about \$4. Please send me private e-mail for those wishing a copy of MM2 manual.

73,s Mike W6MXV in KY

Message-ID: <353FFA1F.1C3C@foothill.net>

Date: Thu, 23 Apr 1998 19:34:07 -0700
From: Eugene Rippen <soundval@foothill.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Knight R-100????
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Got a Knight R100A receiver.
Is this supposed to have a light ray krinkle finish to
match the T-150?
This has a black shiny finish.

Gene

Date: Thu, 23 Apr 1998 22:39:29 -0400 (EDT)
Message-Id: <199804240239.WAA28263@smtp11.bellglobal.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Andre Guibert <aguibert@sympatico.ca>
Subject: GFCI (GFI in Canada)

Bonsoir to All
GFCI are set to trip when they detect 5 m.a. difference
between the hot and the neutral conductors on a grounded
120/240 vac system.
It will detect a ground fault in the primary of your
BA transformer way before your nose or fuse will.
Remember that it will not detect a ground fault past
the primary winding.
Also remember that the neutral should be grounded only
at the service entrance.
Andre

Message-ID: <353FFD43.7F337917@jadebbs.com>
Date: Thu, 23 Apr 1998 21:47:32 -0500
From: Paul Monroe <pmonroe@jadebbs.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: B&W 850 Series Inductance Values
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

A few days ago, Steve Townley asked for inductance data on the B&W 850 coils. Here, for everyone is the scoop from a 1980's vintage B&W catalog. The capacitance is the resonating capacitance. The pi-net load is 50 to 75 ohms.

Model 851 500W, CW,SSB
Load Impedance Range 2500-5000 ohms
80M 14uH, 150pF
40M 6.3uH, 80pF
20M 1.6uH, 70pF
15M .8uH, 55pF
10M .52uH 50pF

Model 850A 2000W CW,SSB
Load Impedance 2500-5000 ohms
80M 13.6uH, 150 pF
40M 6.5uH, 80pF
20M 1.75uH, 70pF
15M 1.0uH, 55pF
10M .8uH 50pF

Model 852 2000W CW/SSB
1500-3000 ohms
80M 7uH, 268pF
40M 3.72uH, 144pF
20M 2.34uH, 73pF
15M 1.34uH, 48.5 pF
10m .95uH, 36pF

73,

Paul W9MEH

Date: Thu, 23 Apr 1998 19:52:51 -0700 (PDT)
Message-Id: <2.2.16.19980423195147.46f7de44@pop.igc.org>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Dick Dillman <ddillman@igc.apc.org>
Subject: Drake TR-4?

I was talking with a colleague who is also a radio enthusiast today. He mentioned that he was having a big garage sale. "Anything I'd be interested in?" I immediately asked. "Only an old Drake TR-4. It's full of tubes. I know you like tubes. I'll send it to you for shipping." Well! Needless to

say I will soon be the owner of a Drake TR-4.

But I really know nothing of these radios and would appreciate any information or advice from the knowledgeable. Is there a separate power supply (I forgot to ask)? What's the difference between the TR4 and the TR-4A? Is it a good, bad or middling performer? Are there any particularly cool accessories I should now start looking for at the swapmeets?

Best Regards,

Dick

Dick Dillman
<ddillman@igc.apc.org>
WPE2VT W6AWO
Collector Of Heavy Metal:
Harleys, Willys and Radios Over 100lbs.

Message-Id: <199804240329.UAA23349@mail-gw6.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: GFCI
Date: Thu, 23 Apr 1998 20:31:09 -0700
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

>I still would like to hear a 'clear, concise explanation on how
> to convert a two-wire boatanchor to a three-wire grounded modern (safe)
> one without raising the ire of the experts.

I thought we had cleared everything up for you Terry. Hi!

Looking over my shoulder I see no one waiting to jump on my back and throttle me silent if I pretend to be an expert. Terry, the outlet in the wall that supplies about 120 volts AC to your toaster (sans 3 wire cord) and your boatanchor (radio shack in the kitchen?) has three openings. The big one in the middle is the PROTECTIVE EARTH GROUND and is, if installed properly, connected to the earth ground at the service entrance circuit breaker box via a green wire. The larger of the two slotted openings is the NEUTRAL and is also connected to the earth ground back at the breaker box via a white wire. The smaller slotted opening is the LINE (hot) and it carries 120 volts AC with respect to ground and is connected to a circuit

breaker via a black wire (There are exceptions to this color coding scheme depending on a variety of factors which have been mentioned by Henry and others in recent postings).

In a 3 wire power cord manufactured for the US market the aforementioned color code is mimicked; GREEN = PROTECTIVE EARTH; WHITE = NEUTRAL and BLACK = LINE. In a power cord manufactured to IEC (International Electrotechnical Committee) standards the color code, interpreted for the single sided 120 volt outlet described above, is GREEN WITH A YELLOW STRIPE = EARTH; BLUE = NEUTRAL and BROWN = LINE.

To connect a 3 wire cord to a vintage two wire radio connect the EARTH wire to the chassis with a separately mounted ground lug. DO NOT tie the EARTH wire to an already available ground connection being used for some other grounding purpose and do good job here, the ground connection needs to be able to carry a short duration surge of several hundred amps and at least 25 amps for one minute without degrading. Connect the LINE wire to a fuse holder. If using a panel mount fuse holder connect the LINE wire to the end farthest from the operator so that the fuse and cap are nearly fully inserted into the fuse holder before the fuse contacts the hot LINE circuit (fuses should be changed with the equipment disconnected). Connect the other end of the fuse to the radio's ON-OFF switch. Connect the radio's AC power input return wire to NEUTRAL.

BEFORE you do any of the preceding, DRAW A CIRCUIT DIAGRAM AND VERIFY BY CAREFUL STUDY THAT YOU HAVE THE CIRCUIT CORRECTLY DRAWN. In other words, get it right in your mind before you muck up the job!

There are other things you should do to insure that the radio is "safe" but at this juncture I will hand over the reins to another "expert" to carry on with this tutorial. I now yield to the gentleman from

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Message-ID: <3540084D.C2077391@earthlink.net>
Date: Thu, 23 Apr 1998 20:34:37 -0700
From: Scott Robinson <spr@earthlink.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: GFCI(or GFI) thresholds and RFI filters
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Folks,

Either UL or IEC950 (European) standards, I forget which (perhaps both), set a 3.5 mA leakage current limit from the power terminals (high and neutral) into the U-ground on equipment. This of course assumes non leaky capacitors; these leakage currents are due to AC voltage across capacitors from the high side of the line to the earth ground in AC line RF filters in the equipment. This amount of current is noticeable if it passes through you.

Regards,

--

Scott Robinson
spr@earthlink.net

Junque is GOOD for you!

From: davidh@getnet.com
Message-Id: <199804240525.WAA11199@getnet.com>
Subject: Need Schematic for S-107
Date: Fri, 24 Apr 98 05:24:28 +0200
To: Old Tube Radios <boatanchors@theporch.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="US-ASCII"

Picked up an S-107 receiver at last week's hamfest here in Phoenix. Cute receiver - looks like a miniature SX-111, same size cabinet as an HT-40 and like most low end Hallicrafters receivers of this period works equally poorly. Anybody have a schematic or manual for this radio????

Tnx and 73,

Dave N7RK

*

Dave N7RK - Webmaster CADXA
Phoenix, Arizona *DXCC Honor Roll* *WAZ#23 - 75 Meter SSB*

ex-N7RK/ZB2, VK2ERK, ZM0AJN, WB6NRK, WN6IWX

Boatanchor Collector Extraordinaire preferring Hallicrafters, National
and what ever else looks interesting!

davidh@getnet.com \\-//
 (o!o)
http://www.getnet.com/~davidh

-----oo00-()-00oo-----

-
E-Mail Address

My Home Page

Visit the Central Arizona DX Association Home page --- <http://cadxa.org>

Message-Id: <199804240551.AAA11291@smtp2.mailsvcs.net>
From: "Jim Berry" <basalop@gte.net>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: "Old Tube Radios" <boatanchors@theporch.com>
Subject: Re: power lines / chassis grounds
Date: Thu, 23 Apr 1998 20:11:49 -0700
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

Hello Scott, Roberta and everyone else. I have been following this thread
with alot of
interest. I have my own ideas of which some are good, most are probably
bad.

In most cases I feel that the third wire was a good idea, but in other
cases it is nothing but trouble. Take a computer or other device like a
monitor that really puts out the garbage. Even if the machine has a line
filter on it, the green wire just bypasses it all and uses the ground
system as one big antenna to radiate garbabe. Turn on a radio, tune in
noise from your monitor, lift the green wire and in most cases the noise
will go away. Guess what I am saying is, what the heck good is the filter
if you have the green wire connected?

Gads, I don't want to defeat the safety ground, but do not know what else
to do. I understand the white wire winds up being grounded anyway. I have
put a meter on the white wire to ground and read zilch, so I assume it is
grounded. Sure, not right at the meter base, but out at the pole somewhere
I understand.

Am I nuts? Am I really setting myself up to get my south end knocked on
the floor? I wonder?

The other day I was wondering through an electrical supply store picking up a few things and spotted a bin full of bright red/orange duplex 110 volt outlets. First thing that came to my mind was why in the heck would anyone want outlets of such a ugly color? I picked one up and discovered that the safety ground was NOT connected. The outlet was intended for use with computers and other devices where the safety ground was detrimental. I guess it is code as long as you use the bright colored outlets.

73 Jim K7SLI

Message-Id: <3.0.1.32.19980424144109.006cc288@192.168.0.1>
Date: Fri, 24 Apr 1998 14:41:09 +0200
To: Old Tube Radios <boatanchors@theporch.com>
From: "JOSE V.GAVILA (EB5AGV/EC5AAU)" <eb5agv@ctv.es>
Subject: WTB: Sweep Generator (HP-8601A or ?)
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Hello!

As title says, I'm in the market for an RF Sweep Generator. I want it to align IFs, filters and so on in those lovely BAs, so I hope not to get big flames for sending this message here :-). I need it to work to at least 75MHz.

One model I think is suitable is the HP-8601A, but any other model/brand would be fine.

Please, e-mail with offers stating price, condition and some basic technical info.

Thanks and best regards.

JOSE

73 EB5AGV / EC5AAU
JOSE V. GAVILA
Ausias March 46, 15
46910 Benetusser - VALENCIA
SPAIN

** VISIT MY VINTAGE RADIO SITE - updated 7-Apr-1998 ***
<http://www.geocities.com/SiliconValley/6992/>
e-mail: eb5agv@ctv.es & eb5agv@amsat.org

Date: Fri, 24 Apr 1998 09:13:51 -0400 (EDT)
Message-Id: <199804241313.JAA10141@smtp11.bellglobal.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Andre Guibert <aguibert@sympatico.ca>
Subject: Re: power lines / chassis grounds

At 20:11 98-04-23 -0700, you wrote:

>The other day I was wondering through an electrical supply store picking up
>a few things and spotted a bin full of bright red/orange duplex 110 volt
>outlets. First thing that came to my mind was why in the heck would anyone
>want outlets of such a ugly color? I picked one up and discovered that the
>safety ground was NOT connected. The outlet was intended for use with
>computers and other devices where the safety ground was detrimental. I
>guess it is code as long as you use the bright colored outlets.

>
>73 Jim K7SLI
>

Bonjour to all
The orange outlet has an isolated ground (The third prong)
which should be connected to an insulated conductor all
the way back to the panel isolated ground .
You need a three conductor plus a bare one for the mecha-
nical ground for such an outlet.
Idealy the isolated ground is brought to a separate main
ground or a separate ground clamp on the same pipe.
Andre

>
>

End of BOATANCHORS Digest 2027

>From ???@??? Sat Apr 25 12:14:07 1998
Message-Id: <199804241654.LAA22982@sco.theporch.com>
Date: Fri, 24 Apr 1998 11:53:39 CDT
Subject: BOATANCHORS digest 2028

BOATANCHORS Digest 2028

Topics covered in this issue include:

- 1) Re: power lines / chassis grounds

- by John Shriver <jas@shiva.com>
- 2) W4UOC FS - status
by W4UOC <W4UOC@aol.com>
 - 3) HRO Dial Gearbox
by W4UOC <W4UOC@aol.com>
 - 4) PS to power systems
by Jderm740 <Jderm740@aol.com>
 - 5) Re: Power Systems and Personal History
by Bill Riches <richesb@algorithms.com>
 - 6) Re: power lines / chassis grounds
by "Roberta J. Barmore" <rbarmore@indy.net>
 - 7) Re: PS to power systems
by ke8rn@juno.com
 - 8) Repro Knobs
by Don <71333.144@compuserve.com>
 - 9) Re: GFCI
by Terry Burge <terrybu@netman.ENS.TEK.COM>
 - 10) RE: power lines / chassis grounds
by David Douglas <DDouglas@Crossroads.com>
 - 11) FT:manual & module
by Jay Coward <jayc@hpcmr42.sj.hp.com>
 - 12) Re: GFCI, Hot chassis sets
by Richard Post <post@ouvaxa.cats.ohiou.edu>
 - 13) Re: Drake TR-4?
by "David L. Thompson" <thompson@mindspring.com>
 - 14) Re: power lines / chassis grounds
by Bill Jarvis <B.H.Jarvis@hw.ac.uk>

Date: Fri, 24 Apr 1998 09:15:17 -0400
Message-Id: <199804241315.JAA12269@brill.shiva.com>
From: John Shriver <jas@shiva.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: power lines / chassis grounds

Two comments on the thread.

(1) The bright orange outlets are for isolated ground. That is, there is still a green screw for the grounding connector. But, the ground is NOT connected to the mounting ears of the outlet. This is for computers and other sensitive equipment. You run a full isolated ground (green wire) all the way back to the service panel. You do not rely on the grounds of the conduits or BX. The ground isn't shared by anything else. Back in the days of "big iron" from Digital, you were supposed to use a "full gauge isolated ground", which would use one of these outlets.

(2) Please, when replacing filter caps across the line, or from line

to ground, use the correct safety rated caps. There are very special caps, with X and Y safety ratings, designed for these applications. Basically, they are designed to fail open, and not catch fire. They are generally metallized paper dielectric, not plastic. (Some low-cost ones are ceramic.) Only paper is self-healing when it gets punctured by a voltage transient. Plastic film capacitors across the line will not self-heal on voltage overload, and will probably go up in flames. Moreover, if you really give the cap a wallop it can't take (lightning strike), the safety cap will fail open -- especially the ones rated for line to ground (Y). Also, they are made of self-extinguishing materials. They are readily available from Digi-Key. You can't get them in values any larger than is legal to use, of course, which may be less than your gear used to have. (That's OK, it will prevent tripping the GFCI.)

From: W4UOC <W4UOC@aol.com>
Message-ID: <3add98bd.354096f1@aol.com>
Date: Fri, 24 Apr 1998 09:43:12 EDT
To: Old Tube Radios <boatanchors@theporch.com>
Mime-Version: 1.0
Subject: W4UOC FS - status
Content-type: text/plain; charset=US-ASCII
Content-transfer-encoding: 7bit

The Eldico Twins and Gonset 6 mtr. Amp are sold.

Tom Koch - W4UOC

From: W4UOC <W4UOC@aol.com>
Message-ID: <dc2f84bd.354096f3@aol.com>
Date: Fri, 24 Apr 1998 09:43:13 EDT
To: Old Tube Radios <boatanchors@theporch.com>
Mime-Version: 1.0
Subject: HRO Dial Gearbox
Content-type: text/plain; charset=US-ASCII
Content-transfer-encoding: 7bit

Several months ago I told someone on the boatanchors list that I had a gearbox and dial for the early HRO such as the HRO 5 or HRO W.

If you will send me your name and address I will send it as promised.

Tom Koch - W4UOC

From: Jderm740 <Jderm740@aol.com>

Message-ID: <8c535c60.35409933@aol.com>
Date: Fri, 24 Apr 1998 09:52:49 EDT
To: Old Tube Radios <boatanchors@theporch.com>
Mime-Version: 1.0
Subject: PS to power systems
Content-type: text/plain; charset=US-ASCII
Content-transfer-encoding: 7bit

Here is a little more "wonders" from the world of house wireing.
Shortly after moving into this house my wife tok a dislike to the kitchen light.

So, I bought a new Flourescent fixture. I turned OFF the switch, climbed upon the table in rubber-soled shoes and diconnected the old light. Heat from years of use had left the rubber covered BX pretty fragile. Sooo, I thought I'd loosen the clamps and pull some uninjured wire out for safety. That not working, I'd sleeve them.

I reached for these "dead" wires and got knocked on my kiester. I've run into "ground leaks" before but not this strong. Took a meter and measured the potential.

One wire was dead to the fixture mount but the other was at full 120. Pulled the plate off the wall and checked inside and found the genius who wired the circuit put the switch IN THE RETURN LEG LEAVEING THE FIXTURE HOT ALL THE TIME. Not only that but the whole house was done that way. I don't know what code was in use back then, but I found this hard to believe. In the aircraft industry we do do this, but for a reason. On the panel we put warning panels we call christmas trees which are strips of light-up signs to tell the pilot of problems. These have a preflight test button grounds all the signs so you know if any of the bulbs are burned out. BUT NOT IN A RESIDENCE. THIS HOUSE WILL NEVER GET OFF THE GROUND NO MATTER HOW LOUD MY WIFE YELLS AT ME FOR NOT TAKEING THE GARBAGE OUT.

Jack

Message-ID: <3540A4FD.5DB4@algorithms.com>
Date: Fri, 24 Apr 1998 09:43:09 -0500
From: Bill Riches <richesb@algorithms.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Power Systems and Personal History
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Jderm740 wrote:

>

> Now I would like to ask a question. When you use an isolation transformer, do
> you connect all the items, radio, test equipment etc. on the secondary of the

> trans or only the radio?
>
> Jack Jderm740@aol.com

Please Jack - only the radio.

73,

Bill, WA2dvv
Cape May, NJ

Date: Fri, 24 Apr 1998 09:36:47 -0500 (EST)
From: "Roberta J. Barmore" <rbarmore@indy.net>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: power lines / chassis grounds
Message-ID: <Pine.SUN.3.96.980424081126.5890B-100000@indy2>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

Hi, Jim & the BA-crew!

On Thu, 23 Apr 1998, Jim Berry wrote:

> In most cases I feel that the third wire was a good idea, but in other
> cases it is nothing but trouble. Take a [...] device like a [...]
> that really puts out the garbage. Even if the machine has a line
> filter on it, the green wire just bypasses it all and uses the ground
> system as one big antenna to radiate garbabe. Turn on a radio, tune in
> noise from your monitor, lift the green wire and in most cases the noise
> will go away. [...] what [...] good is the filter if you have the
> green wire connected?
> Gads, I don't want to defeat the safety ground, but do not know what else
> to do.

Well, you see, the green ground wire wasn't put there to be a good ground point for a line filter. The lads who designed the filter, they were thinking in terms of a direct, lo-Z connection to earth; but what the electrical safety folks were thinking was that, for a device connected to mains power, every exposed conductive part should be connected to a low potential point by a wire that wasn't carrying power and that said wire would be connected to earth ground. ...Among other things, this turns a hot-wire-in-contact-with-chassis fault from an "Ow! <sizzle> (collapse)" problem into a blown fuse or tripped breaker.

Radiation of noise from the ground wire? That's not unusual. There are ways around it, and they don't have to involve *lifting* the ground

connection.

> I understand the white wire winds up being grounded anyway. I have
> put a meter on the white wire to ground and read zilch, so I assume it is
> grounded. Sure, not right at the meter base, but out at the pole somewhere
> I understand.

Out at the *pole?* Maybe. Perhaps. Looks like ours is. But that's Power & Light's worry. In your home, neutral is connected to ground at one and only one spot, in the main breaker box. That's the sole place you the consumer treat neutral like ground--from there on, it's the AC power return and no matter how earthy it is, it's treated like what it is, a wire that carries power. Think of it as a division of labor for reasons of safety: you've got two wires workin' on powering your gear, and one wire working on making sure the cabinet is at zero potential relative to earth.

> [...] I was [...] at [...] an electrical supply store [...] and spotted a
> bin full of bright red/orange duplex 110 volt outlets. First thing that
> came to my mind was why in the heck would anyone want outlets of such a
> ugly color? I picked one up and discovered that the safety ground was
> NOT connected.

Nope! NO! What it is, is an *isolated-ground* socket; the safety ground terminal is not connected to the metal frame by which the socket is mounted in the electrical box; but it *is* connected to the green screw and the intent is that you darned well *will* connect that screw to a ground wire. How and why get interesting....

> The outlet was intended for use with computers and other devices where
> the safety ground was detrimental. I guess it is code as long as you
> use the bright colored outlets.

Once again, NO! And when Mr. Electrical Inspector shows up with his little three-light tester, plugs it in, and doesn't see a glimmer on the hot-to-ground lamp, it will become expensively Not Code.

Having got that out of my system, I will try to explain the how and why of isolated-ground outlets. My business is a major user of 'em--and you'll find them on many stages where live music is performed, too.

I'm going to be lazy, and use some examples I know--let us start with an electrical system in which all the wires are in metal conduit. Done by code, there's a green wire pulled in with every black/white pair from the breaker box; at the box end, the green wire is connected to a little terminal bar connected most solidly to the frame of the box, which is also connected to the ground rods Joe Electrician hammered in somewhere close

by. The conduit is held together by solid little fasteners, and ends in an electrical box sized for a duplex outlet. The outlet's got the white wire connected to the nickelled screw, the black one to the brass screw, and the green wire to the green screw. The ground-pin socket, the green screw and all the metal pieces used to hold the socket together and mount it are connected together. So when we put in the two screws that hold the "ears" of the socket to the box, everything's grounded everywhere: green wire to the main breaker box enclosure, conduit to enclosure, conduit to duplex-sized box, green wire to ground contact of socket and to frame of socket, frame of socket to duplex-sized box.

When you use Romex (that plastic-covered glop), the redundancy drops out, and the green or bare ground wire connects to the screw, screw connects to ground contact and to frame, frame connects to the box the socket is mounted in, and everything is earthed.

...Sometimes the actual safety ground that we pulled in with the black and white wires is noisy (maybe a computer monitor's RFI filter, maybe a 50kW TV transmitter, whatever....). We want a clean ground. So we use an isolated-ground socket. We **still** pull in the green ground wire from the breaker box, and we hook it to the box in which the socket will be mounted. **Then** we bring in our good clean ground, to hook to the green screw on the isolated-ground socket...BUT please note, our fine clean ground **MUST** connect to the genuine actual ground as used in the electrical system, or it doesn't count, Mr. Electrical Inspector refuses to sign off on our permit and it's cold beans for dinner again. (And in most cases, you have to pull your "clean ground" in the same conduit as the other wires).

Now for broadcasting & theatre work, the Code lets us play a little fast and loose, figuring A) We Are Trained Professionals Who Know The Ropes and B) What's one more zapped broadcast/theatre tech? And the grounding at my transmitter site is an example of this sort of permitted exception--you might not get away with doing it at home.

But here goes. Power in the racks starts out conventionally enough--couple of high-grade plugmold strips in each rack, each with the usual black/white wire going back to the breaker box. Pulled in with 'em is a green wire. Green wire ends in a foursquare box above the rack, and is connected to that box. A short section of nonmetallic conduit connects the box to the plugmold mounted to the rack, black & white go through it and hook up per usual. Oh, dear, we've no ground at all now! But wait--at the base of each rack, a **massive** hunk of copper busbar from the main ground buss underneath protrudes up, and is bonded to an only slightly smaller busbar mounted solidly to the rack; from that busbar, we connect up the ground lead to the ground contacts on the plugmold. So there's a ground....but there's a final, important part--the main ground bus (4'x1/4" buss duct, don't try this at home!) is bonded to the lead from the ground rods the electricians put in for the main electrical ground; so my "clean ground" is hooked to the same point as their "dirty ground."

Plug in the little three-light tester, and we get lights in the hot-to-neutral and hot-to-ground lamps, just like is supposed to happen.

...The actual implementation is a bit more arcane, and was a real mess in terms of working out what was and was not permitted under NEC. The main ground buss is a "tree" structure--one end of "trunk" is at the main electrical ground point, and it runs full length of the building to the other end at the base of the TV tower, where 9 more *huge* ground rods and 4 250' buried radials live. Ground busses to everything else are "branches" off the trunk. Within the bulk of the electrical distribution & switchgear, the "everything grounded everywhere" system is followed; then where power goes to the transmitters & terminal equipment, pains have been taken to ensure one (and only one) *very* *massive,* permanent ground connection.

...And this, one hopes on a smaller scale, is the sort of thing you get into when you stray from the usual implementation of three-wire single-phase 120VAC wiring.

The main rule--and they are *serious* about it!--is that you can't have your own ground not connected to the main ground point (favorite Code violation of the recording industry, for some reason--poor grasp of Ohm's law and too many intoxicants is my guess). You've got to bond 'em. You're free to do whatever it takes to get a ground you really, really like (I have in the past suggested a '57 Chevy buried in the dark of the moon by red-headed quadruplets all nicknamed "Lefty" but it didn't catch on), but you *must* connect it to the point the electricians called "ground" in a solid and lasting fashion.

In a residence, you can't play quite as free with the Code, either--but if you hammer in your own station ground rods, bond 'em back to the house ground with some heavy wire, and then run ground wires to all your gear from your ground, you'd be within the law and safe, three-wire plugs and all. (Note that your ground and those ground contacts in the sockets are connected only via your bonding wire between your ground and the power ground). Ground loops? You shouldn't see anything significant--it really takes a lot of work to get truly nasty ground loops; RF will usually be lazy and take the short route no matter what.

73,

--Bobbi

(Arden won't like my grounds at work, probably, and not without reason; ideally, safety grounding is simple, direct, and difficult to get wrong. That's *precisely* how we did it with all the power distribution, in fact. But we had to get artsy where we try to push signals around, the folks at home don't react well to big fat hum bars in the video).

From: ke8rn@juno.com

To: Old Tube Radios <boatanchors@theporch.com>

Cc: boatanchors@theporch.com
Date: Fri, 24 Apr 1998 10:34:51 -0400
Subject: Re: PS to power systems
Message-ID: <19980424.103708.3342.0.KE8RN@juno.com>

Hello all,

One more house horror story: I was removing a florescent light fixture and the soffit above kitchen cabinets while remodeling the kitchen in my Ohio residence [I used the area above the kitchen cabinets as a shelf for selodm used serving dishes and bric-a-brac]. There was a piece of romex teminated in a duplex PLUG, and plugged into the same duplex outlet [2 wire] used by the electric clock. I assumed that this made its way to the aforementioned florescent fixture. Imagine my surprise when the plug at the end of the romex, disconnected and dropped to the floor, contacted the metal housing of the stove and created a shower of sparks until the circuit breaker tripped. Some wizard used the plug on the SOURCE of the AC, and fed power to several circuits by plugging it into the duplex outlet!

George KE8RN

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Date: Fri, 24 Apr 1998 10:30:21 -0400
From: Don <71333.144@compuserve.com>
Subject: Repro Knobs
To: Old Tube Radios <boatanchors@theporch.com>
Message-ID: <199804241032_MC2-3AE2-1B9C@compuserve.com>
MIME-Version: 1.0
Content-Transfer-Encoding: 7bit
Content-Type: text/plain; charset=us-ascii
Content-Disposition: inline

In response to my post, MANY people have asked how to contact Larry Bondonardo. To the best of my knowledge, he is not on the internet. Here is his address:

Larry Bondonardo
Old Time Replications
5744 Tobias Avenue
Van Nuys, CA 91411
Phone 818-786-2500
Fax 818-909-0241

I have used Larry to cast copies of both RCA and Patterson knobs with excellent results. I provided the originals to use to make molds and I could not tell his copies from the originals. The turaround time was about 6 weeks. I was buying 8 or 10 of each knob and his charge was \$7.50 for each mold and \$4 for each repro knob. In my last posting I wrote that he has over 500 molds in stock--that was a typo. He actually has over 5000 molds in stock. So he may already have yours but I wouldn't count on it. Most of his business is not related to boatanchors.

Good luck.

73, Don

Message-Id: <9804241506.AA07393@netman.ENS.TEK.COM>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: Terry Burge <terrybu@netman.ENS.TEK.COM>,
Old Tube Radios <boatanchors@theporch.com>, terrybu@netman.ENS.TEK.COM
Subject: Re: GFCI
Date: Fri, 24 Apr 1998 08:06:42 PDT
From: Terry Burge <terrybu@netman.ENS.TEK.COM>

Bob,

That was a great straight forward explanation and one I can easily follow. Thank you.

Terry
KI7M

Message-ID: <314ACE6CA104D111993000805FE6BC262BC8D0@CSIRAS.Crossroads.com>
From: David Douglas <DDouglas@Crossroads.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: power lines / chassis grounds
Date: Fri, 24 Apr 1998 10:11:05 -0500
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"

Bobbi,

So you're saying that if I hammer in my own ground rods (say near my shack window) and I don't bond them back to the main ground at the electrical box with a length of wire then I'ts not code? What kind of problems can this cause? Ground loops I guess? The electrical box ground and my ground rod are not but probably 30 feet apart. It seems like alot of trouble to run a wire from my ground rod to the electrical box though...

Also, what about 2 wire systems in older houses. I have part of my house (addition) that is three wire, and an older part of the house that's two wire. Unfortunatley my shack is in the two wire portion of the house. I'm running Collins equipment and the 516F-2 has a three wire plug (as well as some of the other equipment) - so I used one of those dreaded three to two wire adapters and grounded the chassis to my ground. BUT my grounds are not bonded at this point.... Should I run a new circuit from a new breaker with ground/neutral/hot to the shack? That would be a little trouble to do, but maybe I need to do that... Thanks for any comments by the group.

Thanks,
David

David M. Douglas
ddouglas@crossroads.com
Phone (512)794-2737

Fax(512)349-0304

Crossroads Systems, Inc.
Austin, TX & San Jose, CA
"Providing paths to connectivity"

> -----Original Message-----

> From: Roberta J. Barmore [SMTP:rbarmore@indy.net]

> Sent: Friday, April 24, 1998 9:37 AM

> To: Old Tube Radios

> Cc: Old Tube Radios

> Subject: Re: power lines / chassis grounds

>

>

>

> Hi, Jim & the BA-crew!

>

> On Thu, 23 Apr 1998, Jim Berry wrote:

> > In most cases I feel that the third wire was a good idea, but in
> other

> > cases it is nothing but trouble. Take a [...] device like a [...]
> > that really puts out the garbage. Even if the machine has a line
> > filter on it, the green wire just bypasses it all and uses the
> ground

> > system as one big antenna to radiate garbabe. Turn on a radio, tune
> in

> > noise from your monitor, lift the green wire and in most cases the
> noise

> > will go away. [...] what [...] good is the filter if you have the
> > green wire connected?

> > Gads, I don't want to defeat the safety ground, but do not know
> what else
> > to do.
>
> Well, you see, the green ground wire wasn't put there to be a good
> ground point for a line filter. The lads who designed the filter,
> they
> were thinking in terms of a direct, lo-Z connection to earth; but what
> the
> electrical safety folks were thinking was that, for a device connected
> to
> mains power, every exposed conductive part should be connected to a
> low
> potential point by a wire that wasn't carrying power and that said
> wire
> would be connected to earth ground. ...Among other things, this turns
> a
> hot-wire-in-contact-with-chassis fault from an "Ow! <sizzle>
> (collapse)"
> problem into a blown fuse or tripped breaker.
> Radiation of noise from the ground wire? That's not unusual.
> There
> are ways around it, and they don't have to involve *lifting* the
> ground
> connection.
>
>
> > I understand the white wire winds up being grounded anyway. I have
> > put a meter on the white wire to ground and read zilch, so I assume
> it is
> > grounded. Sure, not right at the meter base, but out at the pole
> somewhere
> > I understand.
>
> Out at the *pole?* Maybe. Perhaps. Looks like ours is. But
> that's
> Power & Light's worry. In your home, neutral is connected to ground
> at
> one and only one spot, in the main breaker box. That's the sole place
> you
> the consumer treat neutral like ground--from there on, it's the AC
> power
> return and no matter how earthy it is, it's treated like what it is, a
> wire that carries power. Think of it as a division of labor for
> reasons
> of safety: you've got two wires workin' on powering your gear, and one
> wire working on making sure the cabinet is at zero potential relative
> to

> earth.
>
>
> > [...] I was [...] at [...] an electrical supply store [...] and spotted
> a
> > bin full of bright red/orange duplex 110 volt outlets. First thing
> that
> > came to my mind was why in the heck would anyone want outlets of
> such a
> > ugly color? I picked one up and discovered that the safety ground
> was
> > NOT connected.
>
> Nope! NO! What it is, is an *isolated-ground* socket; the safety
> ground terminal is not connected to the metal frame by which the
> socket is
> mounted in the electrical box; but it *is* connected to the green
> screw
> and the intent is that you darned well *will* connect that screw to a
> ground wire. How and why get interesting....
>
> > The outlet was intended for use with computers and other devices
> where
> > the safety ground was detrimental. I guess it is code as long as
> you
> > use the bright colored outlets.
>
> Once again, NO! And when Mr. Electrical Inspector shows up with
> his
> little three-light tester, plugs it in, and doesn't see a glimmer on
> the
> hot-to-ground lamp, it will become expensively Not Code.
>
> Having got that out of my system, I will try to explain the how and
> why
> of isolated-ground outlets. My business is a major user of 'em--and
> you'll find them on many stages where live music is performed, too.
> I'm going to be lazy, and use some examples I know--let us start
> with
> an electrical system in which all the wires are in metal conduit.
> Done by
> code, there's a green wire pulled in with every black/white pair from
> the
> breaker box; at the box end, the green wire is connected to a little
> terminal bar connected most solidly to the frame of the box, which is
> also
> connected to the ground rods Joe Electrician hammered in somewhere
> close

> by. The conduit is held together by solid little fasteners, and ends
> in
> an electrical box sized for a duplex outlet. The outlet's got the
> white
> wire connected to the nickelled screw, the black one to the brass
> screw,
> and the green wire to the green screw. The ground-pin socket, the
> green
> screw and all the metal pieces used to hold the socket together and
> mount
> it are connected together. So when we put in the two screws that hold
> the
> "ears" of the socket to the box, everything's grounded everywhere:
> green
> wire to the main breaker box enclosure, conduit to enclosure, conduit
> to
> duplex-sized box, green wire to ground contact of socket and to frame
> of
> socket, frame of socket to duplex-sized box.
> When you use Romex (that plastic-covered glop), the redundancy
> drops
> out, and the green or bare ground wire connects to the screw, screw
> connects to ground contact and to frame, frame connects to the box the
> socket is mounted in, and everything is earthed.
>
> ...Sometimes the actual safety ground that we pulled in with the
> black
> and white wires is noisy (maybe a computer monitor's RFI filter, maybe
> a
> 50kW TV transmitter, whatever....). We want a clean ground. So we
> use an
> isolated-ground socket. We **still** pull in the green ground wire from
> the
> breaker box, and we hook it to the box in which the socket will be
> mounted. **Then** we bring in our good clean ground, to hook to the
> green screw on the isolated-ground socket...BUT please note, our fine
> clean ground **MUST** connect to the genuine actual ground as used in
> the
> electrical system, or it doesn't count, Mr. Electrical Inspector
> refuses
> to sign off on our permit and it's cold beans for dinner again. (And
> in
> most cases, you have to pull your "clean ground" in the same conduit
> as
> the other wires).
>
> Now for broadcasting & theatre work, the Code lets us play a little
> fast and loose, figuring A) We Are Trained Professionals Who Know The

> Ropes and B) What's one more zapped broadcast/theatre tech? And the
> grounding at my transmitter site is an example of this sort of
> permitted
> exception--you might not get away with doing it at home.
> But here goes. Power in the racks starts out conventionally
> enough--couple of high-grade plugmold strips in each rack, each with
> the
> usual black/white wire going back to the breaker box. Pulled in with
> 'em
> is a green wire. Green wire ends in a foursquare box above the rack,
> and
> is connected to that box. A short section of nonmetallic conduit
> connects
> the box to the plugmold mounted to the rack, black & white go through
> it
> and hook up per usual. Oh, dear, we've no ground at all now! But
> wait--at
> the base of each rack, a *massive* hunk of copper busbar from the main
> ground buss underneath protrudes up, and is bonded to an only slightly
> smaller busbar mounted solidly to the rack; from that busbar, we
> connect
> up the ground lead to the ground contacts on the plugmold. So there's
> a
> ground....but there's a final, important part--the main ground bus
> (4'x1/4" buss duct, don't try this at home!) is bonded to the lead
> from
> the ground rods the electricians put in for the main electrical
> ground; so
> my "clean ground" is hooked to the same point as their "dirty
> ground."
> Plug in the little three-light tester, and we get lights in the
> hot-to-neutral and hot-to-ground lamps, just like is supposed to
> happen.
> ...The actual implementation is a bit more arcane, and was a real
> mess
> in terms of working out what was and was not permitted under NEC. The
> main ground buss is a "tree" structure--one end of "trunk" is at the
> main
> electrical ground point, and it runs full length of the building to
> the
> the other end at the base of the TV tower, where 9 more *huge* ground
> rods
> and 4 250' buried radials live. Ground busses to everything else are
> "branches" off the trunk. Within the bulk of the electrical
> distribution
> & switchgear, the "everything grounded everywhere" system is followed;
> then where power goes to the transmitters & terminal equipment, pains
> have

> been taken to ensure one (and only one) *very* *massive,* permanent
> ground
> connection.
>
> ...And this, one hopes on a smaller scale, is the sort of thing you
> get
> into when you stray from the usual implementation of three-wire
> single-phase 120VAC wiring.
> The main rule--and they are *serious* about it!--is that you can't
> have
> your own ground not connected to the main ground point (favorite Code
> violation of the recording industry, for some reason--poor grasp of
> Ohm's
> law and too many intoxicants is my guess). You've got to bond 'em.
> You're free to do whatever it takes to get a ground you really, really
> like (I have in the past suggested a '57 Chevy buried in the dark of
> the
> moon by red-headed quadruplets all nicknamed "Lefty" but it didn't
> catch
> on), but you *must* connect it to the point the electricians called
> "ground" in a solid and lasting fashion.
> In a residence, you can't play quite as free with the Code,
> either--but
> if you hammer in your own station ground rods, bond 'em back to the
> house
> ground with some heavy wire, and then run ground wires to all your
> gear
> from your ground, you'd be within the law and safe, three-wire plugs
> and
> all. (Note that your ground and those ground contacts in the sockets
> are
> connected only via your bonding wire between your ground and the power
> ground). Ground loops? You shouldn't see anything significant--it
> really
> takes a lot of work to get truly nasty ground loops; RF will usually
> be
> lazy and take the short route no matter what.
>
> 73,
> --Bobbi
>
> (Arden won't like my grounds at work, probably, and not without
> reason;
> ideally, safety grounding is simple, direct, and difficult to get
> wrong.
> That's *precisely* how we did it with all the power distribution, in
> fact.
> But we had to get artsy where we try to push signals around, the folks

> at
> home don't react well to big fat hum bars in the video).

From: Jay Coward <jayc@hpcmrd42.sj.hp.com>
Message-Id: <9804241547.AA07715@hpcmrd42.sj.hp.com>
Subject: FT>manual & module
To: Old Tube Radios <boatanchors@theporch.com>
Date: Fri, 24 Apr 98 8:47:53 PDT
Cc: jayc@hpcmrd42.sj.hp.com

Greetings to the Group,
A friend has the following for trade in the San Francisco
Bay Area only:

TM 11-885 AUG 1946
R-140/FSM-1
HRO-5,-5M National HRO series of Receivers

and

AM-1528A/URC
transmitter exciter module; described to me as early '60's
vintage,has motor driven band switch,no tubes or tube shields,
but otherwise complete and clean.

Friends name is Eb Keller and he can be reached by e-mail at the
following address:

eb_keller@hp.com

Please e-mail him,not me!

Thanks,

73 Jay

Message-Id: <v03007800b1664852bb8a@[132.235.47.16]>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Date: Fri, 24 Apr 1998 12:08:00 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Richard Post <post@ouvaxa.cats.ohiou.edu>
Subject: Re: GFCI, Hot chassis sets
Cc: broehrig@admin.aurora.edu

Bob Roehrig writes:

>MY METHOD FOLLOWS - If I am wrong someone can tell me why:

>(and I have some questions in this regard also)

>

>If the BA has a power transformer so the circuits are isolated from the

>AC line, it is simple to replace the original cord with a 3-wire job.

>

>I also usually replace any line bypass caps with new ones of .01uf at
>at least 600V.

So far, so good. I typically use ceramics rated at 1 Kilovolt or more, or better yet, special caps that are rated for this purpose.

---snip----

>Now how about those lovely "hot chassis" jobs (also known as the AA-5)
>where there is no transformer? Some of those have one side of the line
>directly connected to the chassis and some have the circuit "floating"
>except for maybe some caps to the chassis.

>

>So far in this case, I have replaced the line cord with a polarized
>2-prong plug type. I make sure that the wide prong, which is neutral,
>goes to the chassis or the "low" side of the circuit. I also make sure
>that the AC switch is in the hot side. (I usually add a fuse, too).
>I make sure that I only plug such a unit into an outlet that has been
>properly wired. I also always check the filament string wiring. It is
>important that the hot side of the line goes to the rectifier first,
>then the audio output stage, then the smaller 12V tubes, with the 1st
>audio stage usually being the closest to "ground".

>

>If the set DOES NOT have the line directly connected to the chassis,
>it should be OK to use a 3-wire grounded cord (examples: a S-38 or SW-54),
>but I have not done so (I only have a couple of AA-5 radios and seldom use
>them). If the set has a GROUND screw, then it is safe to ground the
>chassis.

Bob and others,

I also use two-wire polarized cords with an added in-line fuse. Be aware that Bob's method requires rewiring of the power switch of the set since most AC-DC sets with floating ground have the power switch switching to the floating ground.

Many of the BA hot chassis sets are doubly dangerous because of the metal cabinets. Halli's Echophone series, the Halli S-41, the S-38 series up to the "C" (i am not sure if the "C" used floating ground or not, will have to check), the transformerless National NC-4x series, and many other sets designed for marine use are very much HOT chassis sets with one side of the power line switched to the chassis. Many of the sets mentioned also have grommets or other insulation between the chassis and the cabinet and a capacitor connected between the chassis and the cabinet. The GROUND screw on some of these sets (S-38 included) goes to a CAPACITOR, which provides an RF ground but not an electrical ground. If you use a 3-wire cord properly connected to one of these unmodified sets, in most cases, you will

not be able to turn it off with the power switch because the power switch connects one side of the line to the chassis. You will also trip a GFCI.

I recently replaced the volume control/ power switch of an Echophone EC-1 (the original switch was bad) with a DPST switch which cuts both sides of the power line at the same time. I also used a polarized 2 wire cord and in-line fuse. At this point, I know that power is OFF inside that set when the switch is off.

The Halli sets mentioned have deceptive schematics to the untrained eye. It LOOKS like the sets are of the floating ground type when in fact the chassis is the hot "floating ground" and the cap connected to the metal cabinet is what we normally associate with a connection to the chassis in your typical AC-DC set.

I strongly recommend plugging into either an isolation transformer or a GFCI protected outlet. I use a GFCI for all my bench power. If it pops, I find out why. I also use an isolation transformer to feed my variac into which I connect any device being worked on. All my test equipment either has the three prong plug or is connected by a ground buss to those that are three-prong connected.

I am sometimes amazed at the callousness of designers of early hot chassis boatanchors. Lift up the lid on an NC-46 and see the UNinsulated 120 volt pilot light socket right at your finger tips.

And the EC-1 noted above? I had to rewind the antenna input coil, probably because some poor schmuck grounded his antenna connection and found that 120 volts across such a coil would let the smoke out.

73, Rich

=====
mailto:rpost1@ohiou.edu

Boatanchor Pix website - KB8TAD
<http://ouvaxa.cats.ohiou.edu/~post/PIX/BA.html>

visit the Museum of Radio and Technology website
<http://ouvaxa.cats.ohiou.edu/~post/MRT/>

Date: Fri, 24 Apr 1998 12:13:07 -0400 (EDT)
Message-Id: <1.5.4.16.19980423231524.0a17ea9a@pop.mindspring.com>
Mime-Version: 1.0

Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: "David L. Thompson" <thompson@mindspring.com>
Subject: Re: Drake TR-4?
Cc: boatanchors@theporch.com

At 07:52 PM 4/23/98 -0700, you wrote:

>

>I was talking with a colleague who is also a radio enthusiast today. He
>mentioned that he was having a big garage sale. "Anything I'd be
interested >it?" I immediately asked. "Only an old Drake TR-4. It's full
of tubes.

SNIP

>But I really know nothing of these radios and would appreciate any
>information or advice from the knowledgeable.

Dick,

The TR-4 is a very fine transceiver made by Drake in the mid to late 60's.
The last in the line was the TR-4CW in the mid 70's.

The TR-4 uses the same supply as the T4X series and you could get a remote
VFO (RV-4) for split operation. Uses sweep tubes for the final but puts out
between 160 and 200W (THAT IS OUTPUT) on 80 to 10. You can probably get
crystals for the 17 and 12 meter band. Not sure of 10Mhz because there is a
limitation on 9Mhz.

Get a good manual and find the reviews in QST and CQ...I think you may have
a winner. BTW The TR-4 if working is worth about \$200. And Drake will
still work on the transceiver.

Have Fun.

Dave K4JRB

Message-Id: <199804241653.RAA18733@punt2.hw.ac.uk>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>
CC: boatanchors <boatanchors@theporch.com>
Date: Sat, 25 Apr 1998 18:53:03 +2200
Subject: Re: power lines / chassis grounds

On 1998-04-24 jas@shiva.com said:

.Two comments on the thread.

.(1) The bright orange outlets are for isolated ground. That is,
.there is still a green screw for the grounding connector. But, the

.ground is NOT connected to the mounting ears of the outlet. This is for computers and other sensitive equipment. You run a full isolated ground (green wire) all the way back to the service panel. You do not rely on the grounds of the conduits or BX. The ground isn't shared by anything else. Back in the days of "big iron" from Digital, you were supposed to use a "full gauge isolated ground", which would use one of these outlets.

.(2) Please, when replacing filter caps across the line, or from line to ground, use the correct safety rated caps. There are very special caps, with X and Y safety ratings, designed for these applications. Basically, they are designed to fail open, and not catch fire. They are generally metallized paper dielectric, not plastic. (Some low-cost ones are ceramic.) Only paper is self-healing when it gets punctured by a voltage transient. Plastic film capacitors across the line will not self-heal on voltage overload, and will probably go up in flames. Moreover, if you really give the cap a wallop it can't take (lightning strike), the safety cap will fail open -- especially the ones rated for line to ground (Y). Also, they are made of self-extinguishing materials. They are readily available from Digi-Key. You can't get them in values any larger than is legal to use, of course, which may be less than your gear used to have. (That's OK, it will prevent tripping the GFCI.)

Glad you mentioned filter capacitors, and X and Y ratings. Am I right in assuming such caps are built in to dimmer switch modules?

I ask because my brother-in-law has recently had the house rewired because the old wiring was obsolete and dangerous.

They installed ELCBs = earth leakage circuit breakers = GFCIs; also dimmer switches (many - about 12?), and low voltage ceiling lights with transformers of course.

Turning up just a few dimmers causes the ELCB (GFCI) to trip.

The suppliers of the dimmer switches say the fault is in the transformers for the LV lights.

The suppliers of the LV lights say the fault is in the dimmer switches.

I suspect it's filter Cs associated with the dimmers which cause earth leakage currents in excess of the trip values.

Is this a common problem? Is there a simple answer?

Thanks in anticimapatation,

=====

GM8APX, qthr

=====

=====

BILL J.

=====

=====

=====

Edinburgh, Scotland, UK

Hennus non potest de aliquid superficere mentem

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End of BOATANCHORS Digest 2028
